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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,418	07/01/2005	Alexander Stenger	PHDE030008 US	6715

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EXAMINER

SINGH, RAMNANDAN P

ART UNIT PAPER NUMBER

2614

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/541,418

Applicant(s)

STENGER, ALEXANDER

Examiner

Ramnandan Singh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-12 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 01 July 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date Jul. 01, 2005.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d) on July 1, 2005, which papers have been placed of record in the file.

Drawings

2. The drawings are objected to because the blocks 6, 8, 425, 421, 424 and 428 of Figure 1 do not have legends explaining the reference numerals used therein. Similarly blocks 71 and 72 of Fig. 3 do not have legends.. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and

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informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The suggested title is :

DEVICE AND METHOD FOR SUPPRESSING ECHO IN TELEPHONES

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 12 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 12 recites the limitation "A computer program with computer programming means" in line 1. Since the computer program code has not been

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supplied, the flowcharts describing functions to be executed by the program code are required to enable one of ordinary skill in the art to program the functions.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romesburg [US 6,148,078] in view of Eriksson et al [US 6, 195,430 B1].

Regarding claim 1, Romesburg teaches a device , as shown in Fig. 3, for reducing echo for an arrangement for transmitting audio signals, in particular uttered speech, having: an echo reduction unit, which is arranged between an input channel for receiving an input audio signal (125) coming from a remote end and an output channel for outputting an output audio signal (155), for suppressing an echo signal contained in the output audio signal, a speech activity detection unit associated with echo suppressor (130) for detecting a speech signal contained in the input audio signal (125), and, a control unit (130) for setting an echo suppression factor (ρ) of the echo reduction unit (130) for echo suppression [Figs. 1-4; col. 4, lines 5-32; col. 5, line 46 to col. 6, line

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22; col. 6, line 57 to col. 7, line 7; col. 8, line 52 to col. 9, line 22; col. 10, lines 22-32; claim 1].

Although Romesburg does teach using an echo suppression control unit (130) [Fig. 3], he does not teach expressly an echo suppression factor to gradually reduce a residual echo setting of the echo suppression factor (ρ).

Eriksson et al teach setting an echo suppression factor (ρ) to gradually and continuously change the echo suppression factor from a high echo suppression value set while a speech signal is present in the input audio signal) to a low echo suppression value if the speech activity detection unit detects that the input audio signal does not contain any speech signal. [Fig. 11, col. 4, line 24 to col. 5, line 55].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Eriksson et al with Romesburg in order to gradually suppress the residual echo [col. 4, lines 32-44].

Claim 11 is essentially similar to claim 1 and is rejected for the reasons stated above.

Regarding claim 2, the combination of Romesburg and Eriksson et al further teaches the device, characterized in that the control unit (130) of Romesburg is so

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designed that reduction of the echo suppression factor (ρ) takes place exponentially from the high echo suppression value to the low echo suppression value [Eriksson et al; col. 4, lines 31-44].

Regarding claim 3, the combination of Romesburg and Eriksson et al further teaches the device, characterized in that reduction of the echo suppression factor (ρ) takes place in accordance with the function given in Equation (2), (ρ) is a factor representing the exponential reduction behavior [Eriksson et al; col. 4, lines 31-44].

Regarding claim 6, the combination of Romesburg and Eriksson et al further teaches the device, characterized in that a second speech activity detection unit associated with echo suppressor (130) [Fig. 3] is provided for detection of a speech signal contained in the echo-reduced audio signal (145) fed to the echo reduction unit (130) and coming from a near end and in that the control unit (130) is so designed that the echo suppression factor is set to the high echo suppression value if the input audio signal contains a speech signal and the echo-reduced audio signal does not contain a speech signal coming from the near end, and in that the echo suppression factor is set to a medium echo suppression value lying between the high and low echo suppression values, wherein the echo suppression factor (ρ) includes the medium value, if the input audio signal contains a speech signal and the echo-reduced audio signal contains a speech signal coming from the near end [Romesburg; Fig. 3; col. 8, line 52 to col. 9, line 22].

Regarding claim 7, the combination of Romesburg and Eriksson et al further teaches the device, characterized in that the echo reduction unit (130) comprises an adaptive FIR echo filter (140) for determining an estimated echo signal and in that the coefficients of the adaptive FIR echo filter (140) are initialized at the start of the reception of the input audio signal (125) to a value unequal to zero [Figs. 3-4].

Regarding claim 8-9, the limitations are shown above.

Regarding claim 4, since Eriksson et al teach using an exponential factor to gradually reduce the residual echo [Col. 4, line 25 to col. 5, line 55], it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to select suitable values of the suppression factor from the range 0 to 1 for implementation depending on the application of the system.

Since claims 5 and 10 also relate to implementation details of the echo suppression factor, they are rejected for the reasons stated above in claim 4.

Regarding claim 12, Romesburg further teaches a computer program with computer programming means for causing a computer to execute the method steps of the method, if the method is executed on a computer [col. 42, line 66 to col. 43, line 9].

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Boland [US 20030123674 A1] teaches using an echo suppression factor [Figs. 1-6; Para: 0049 –0062].

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on 571-272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ramnandan Singh
Examiner
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A handwritten signature in black ink, appearing to read 'R. Singh', written over a horizontal line.